CSE 3105/CSE 3137

OBJECT ORIENTED ANALYSIS AND DESIGN

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COURSE PROJECT: "*Media Browser Application*"

Requirements Analysis Document

Group 10

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1 Introduction

Our application is a system that supports different media formats widely used and can only work on the computers. The application going to present media browsing with 3 - in- 1 (audio, video, images) media browser with special features which other media players (Windows Media Player, VLC, GOM player) don't have.

The success criteria of our application are:

- Easily adding of the desired media to the favorites or other lists.
- End-user's satisfaction and application usability.

2 Current System

Other systems generally support the common video, image and audio formats.

Features of other existing systems:

VLC:

- It provides very useful options about video, track and subtitle synchronization and navigation.
- Cannot minimize to the toolbar.
- Cannot quit using with an icon.

Windows Media Player:

- Create a playlist, or favorite list and cd-writing is very easy.
- Cannot navigate in the video with arrow keys without clicking the navigation bar.

Films & TV:

- Sound and subtitle files can be changed at the video.
- When clicking to navigate icon at the below of the navigation bar, it just rewinds 10 seconds. Although when navigation bar is clicked if arrow keys used, it rewinds 30 seconds.
- Cannot open the audio formats.

Celluloid:

- It runs faster than other media browsers and players.
- When an image file is opened, it only stays for one second. Actually, it is open the image file in a short video format.

GOM Player:

- Can provides more specific features and properties about sound system and equalizer properties than most of the other media browser and player applications.
- The user interface is not user-friendly. Options are too complex and required option can't find easily.

Our system going to provide solutions to the existing problems and many more.

3 Proposed System

3.1 Overview

Our application presents a way to play music, video and display image in just one media browser. The system features includes play, pause, stop, display, shuffle, sorting alphabetically, by artist, album, genre, length, release date, size, captured place, date, folder name, added to library date, adjusting sound level, equalizer, minimizing, closing the app, making the app full screen, seeing now playing queue, making playlists, adding a media to favorites, adding subtitles, showing pictures and videos as slide, zooming, rotating, cropping, making pictures background images, scanning for new media, rewinding and fast forwarding. The media browser has features that improves usability other media browsers don't have such as adjusting the length of rewind and fast forward, running all of applications features with easy to use keyboard shortcuts, showing a tutorial about new and better features on the initial run.

3.2 Functional Requirements

- Registering and logging in to the system.
- Authentication of a user when they log in to the system.
- Tutorial of unusual and better features on the initial run.
- Sorting media files by the listed sort measures.
- Changing frequencies on equalizer.
- Seeing and making changes to the now playing queue.
- Making playlists.
- Adding a media file to favorites.
- Rewinding and fast forwarding.
- Adjusting length of rewind and fast forward.
- Filtering by media type.

3.3 Nonfunctional Requirements

- The system's features should be easy to use but not too easy so hard to use features should be in the system as well. User's utility of the system should be dependent user's expertise.
- Media browser should be usable without logging in.
- Main features when a media file is opened (play, pause, stop, rewind, fast forward sound level adjuster, full screen, zoom, rotate) must be clearly visible to the user.
- System can be restarted in the event of failure. There shouldn't be any data loss
- Detailed knowledge of the system, licenses, and first-time tutorial should be provided to the user.
- Media browser should open any media files without exceeding 3 minutes.
- Logging in to system should not exceed 5 seconds.
- Going from window to window response time should not exceed 10, 50, 100ms in computers with SSD, >80 MB/s, <80 MB/s hard drives in respected order.
- User should be able to open an image file and audio or video file simultaneously.
- New features must be added without corrupting other features on the media browser.
- New features must be added without changing media browser's structure.

3.4 System Models

3.4.1 Scenarios

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1 -) "UsePlaylist" use-case's Scenario

Scenario Name : UseOfPlaylists

Participating Actors : berk: **AdministratorUser**, aykız: **SecondaryUser,** alperen: **GuestUser**

- - - Main Part - - -

"Berk opened his media browser, which he always used, by entering the user information into his account he had previously created, and reached the music he wanted. After listening to his music, he added this music to a (rock music playlist) playlist he had previously created. Then he searched and found another music he wanted to listen in his media browser. Later, he wanted to add this music to a playlist, but a playlist suitable for this music had not been created before. He immediately created a new playlist (classical music playlist) and added this music to this playlist. Berk, who then wanted to listen to a music on his favorite list, immediately entered the favorites list and after listening to the music he was looking for, he wanted to remove this music from his favorite music. Added to favorites with the option to add to their favorites. After that, he wanted to look at a few photos too, then he wanted to add them to his favorites and added them. Berk, who comes to mind of the old days when he looks at the photographs, watched a few videos to remember the old days he spent with his friends in the past and added these videos to his favorites. He also added some of these videos to a newly created playlist so he could find them later, and then quit the app.

- - - Secondary Part - - -

Aykız entered the media browser with his own user information for a few music he wanted to listen to. He then entered the playlist (modern blues music) he had created before and easily found the music he was looking for from the list that appeared. After listening a few times, he accessed the playlist (my lovely family) with the photos they took as a family, and from there he looked at a few photos. Realizing that the color of the application's theme has been the same for a long time, Aykız wanted to change the theme color and font, but could not do so because these features could only be changed by the main user (Administrator user). Later, after watching a few videos on his favorite list, he left the application.

- - - Tertiary Part - - -

A friend of Berk, Alperen entered the media browser with his guest account to check a few videos and listen to some music. Later, after listening to the videos and music he was looking for, he wanted to add a few of these music to a playlist, but the app did not allow it. Alperen wanted to add it to his favorites, at least so that I might listen again later, but he could not do that either. Because guest accounts only allowed searching and repairing the desired media. Upon this, Alperen quit the application after looking at a few photos."

Flow of Events :

----- *Berk, AdministratorUser* -----

1. Berk logged in to MBA(media browser application) with user information.

2. After found and listen to the music he was looking for, he added that music to playlist "Rock Music Playlist" which he created before.

3. Berk, wants to listen another music, so when he listened that music he wanted to add this music to another playlist "classical music". But he could not find that playlist because of it was not exist or created before. He created a new playlist which is named "Classical Music Playlist" and add that music to this playlist.

4. Then, Berk wanted to listen another music from his favorites. He found the music. After he listened that music he wanted to remove this music from his favorites ("Favorite List").

5. Berk, wanted to look some photos. And he added these photos to his favorites.

6. Berk, who comes to mind of the old days when he looked at the photographs, watched a few videos to remember the old days he spent with his friends in the past and added these videos to his favorites.

7. Thereafter, he logged out from the program.

2 -) "SearchMedia" use-case's Scenario

Scenario Name : MediaSearching

Participating Actors : ahmet: **SecondaryUser**

" Ahmet opens media browser application. When the application is opened, he sees the options of "login, register or continue as a guest". He continues to the application by registering. He can see the medias with extensions "mp3, m4a, flac, wav, wma, aac, mp4, avi, wmv, flv, webm, jpg, jpeg, png and gif" in the application (only medias added by AdministratorUser). He selects media type he wants to play and searches with character / characters in the name of the media. He selects the media based on search results. The application adds the media / medias that Ahmet's chosen to the now playing queue. He plays the now playing queue after he chooses also other medias. "

Flow of Events :

1. Ahmet opens media browser application. When the application is opened, he sees the options of "login, register or continue as a guest". He continues to the application by registering.

2. He can see the medias with extensions "mp3, m4a, flac, wav, wma, aac, mp4, avi, wmv, flv, webm, jpg, jpeg, png and gif" in the application (only medias added by AdministratorUser).

3. He selects media type he wants to play and searches with character / characters in the name of the media.

4. He selects the media based on search results. 5. The application adds the media / medias that Ahmet's chosen to the now playing queue. He plays the now playing queue after he chooses also other medias.

3 -) "PlayVideo" use-case's Scenario

Scenario Name : SetWindingSpeed

Participating Actors : betül: **SecondaryUser**

"Betül opens the media player application and wants to play a video. Betül chooses the fileshewants to execute with the help of the device's directory system. While the video is playing, Betül wants to fast forward the video 25 seconds. However,sherealizes that the speed to forward the video is 5 seconds. Betül stopped the video and setting the fast forward speed from the app to 25 seconds, it now faster the video 25 seconds at a time. Then start the video again. Betül continues to use the app, glad to not have done 5 times to fast forward the video 25 seconds."

Flow of Events :

1. Betül opens a media player broadcast (MBA) and wants to play a video.

2. Betül chooses the fileshewants to execute with the help of the device's directory system.

3. While the video is playing, Betül wants to fast forward the video 25 seconds. Then stopped the video.

4. However,sherealizes that the speed to forward the video is 5 seconds. After setting the fast forward speed to 25 seconds, it now fastens the video 25 seconds at a time.

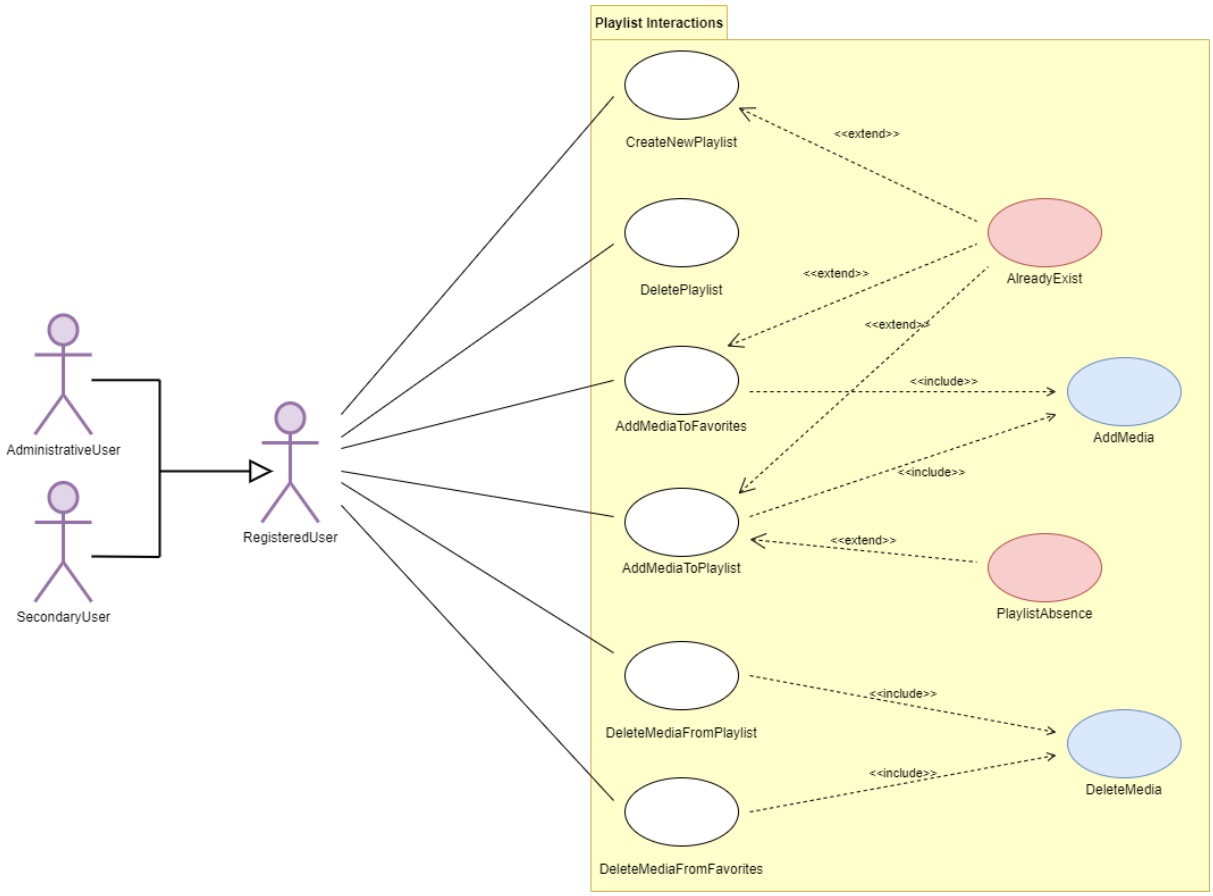
5. Whenshesetting the winding speed,sheplayed the media again.

6. Betül continues to use the app, glad thatshedid not fast forward 5 times to fast forward the video 25 seconds.

3.4.2 Use Case Model

1 -) "UsePlaylist" Use - Case

❖ *Use – Case Diagram :*



❖ *Textual Description*

Use Case Name : Use Playlist

Participating Actors : AdministratorUser, SecondaryUser

Entry Conditions : Login to media browser.

Exit Conditions : Logout from media browser.

Flow of Events :

1. AdministratorUser logs in to MBA(media browser application) with user information.(include use cases LogInOut)

2. AdministratorUser searches for a music, then AdministratorUser added that music to playlist RockMusicPlaylist which is created before.(include use cases SearchMedia, AddMedia)

3. AdministratorUser, searches for another music and finds it. AdministratorUser add this music to another non-existing playlist "classical music". AdministratorUser creates a new playlist which is named ClassicalMusicPlaylist and add that music to this playlist.(include use cases SearchMedia, AddMedia)

4. Then, AdministratorUser, opens a music from FavoriteList. AdministratorUser removes this music from his FavoriteList.(includes use cases DeleteMedia)

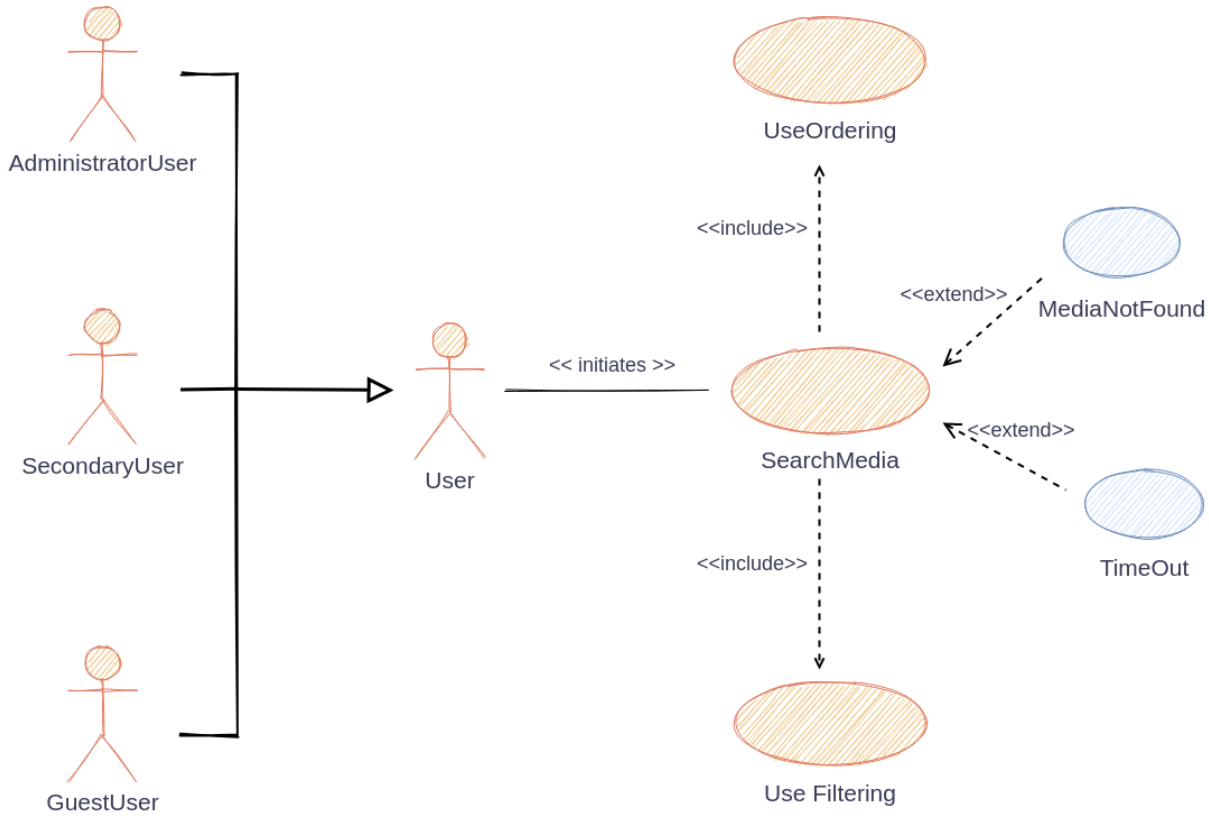
5. AdministratorUser searches for photos and finds them. And AdministratorUser added these photos to FavoriteList.(Include use cases SearchMedia, AddMedia)

6. AdministratorUser searches for photos and looks them. AdministratorUser search for videos and finds them. AdministratorUser adds these videos to his FavoriteList.(include use cases SearchMedia, AddMedia)

7. Thereafter, AdministratorUser logs out the program. (include use cases LogInOut)

2 -) "SearchMedia" Use - Case

❖ *Use – Case Diagram :*



❖ *Textual Description*

Use Case Name : SearchMedia

Participating Actors : Used by SecondaryUser
Used by AdministratorUser
Used by GuestUser (generalized version User)

Entry Conditions : User opened the media browser application.

Exit Conditions : • User found the media they was looking for, OR
• User couldn't find any results regarding the character / characters he was looking for.

Flow of Events :

1. The User performs the "Search Media" function of media browser application.

2. MBA responds by presenting a form to the User. The form includes a field where media types can be filtered and a field where the media name can be entered.

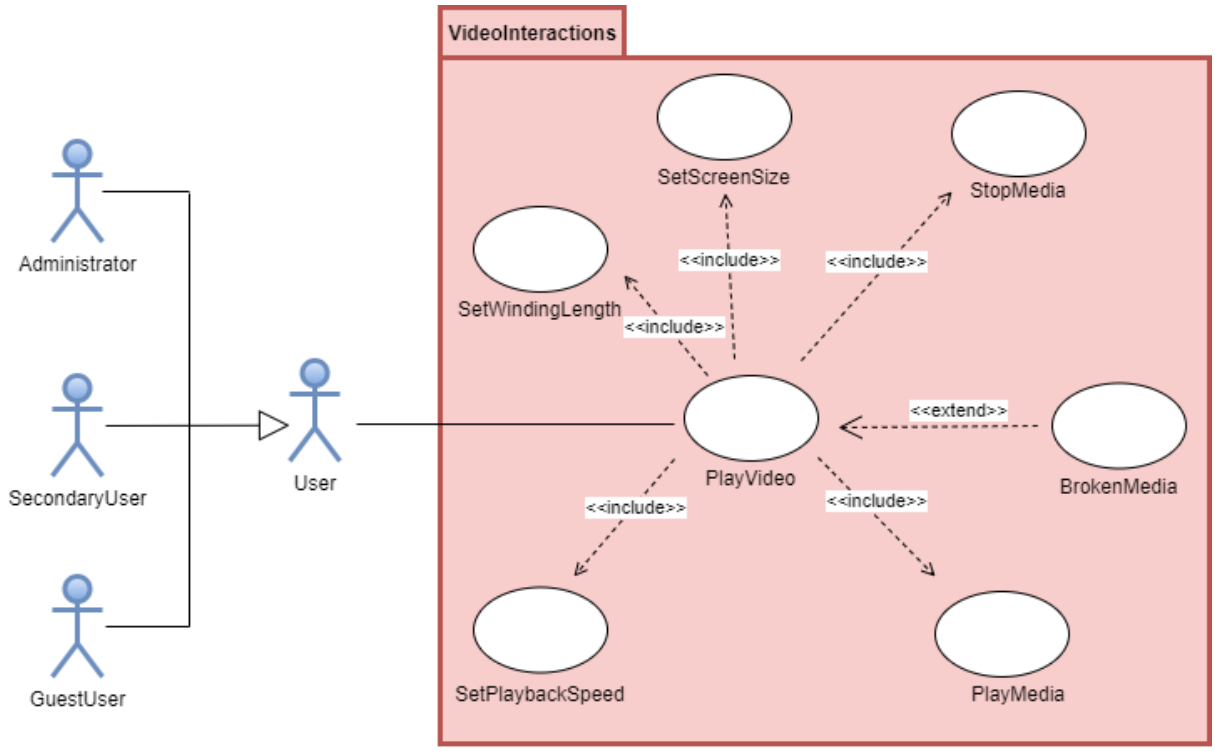
3. User selects the type of media they wants for filtering and fills media name field by typing any character / characters in the name of the media they wants to search.

4. MBA searches by the characters in the name of the media from among selected media types in the application and shows all medias containing the searched character / characters to User with a window.

***Quailty Requirements*:** User reaches the media he wants to search in maximum 10 seconds.

3 -) "PlayVideo" Use - Case

❖ *Use – Case Diagram :*



❖ *Textual Description*

Use Case Name : PlayVideo

Participating Actors : User

Entry Conditions : Users opens the video.

Exit Conditions : Users exit from the video.

Flow of Events :

1. The User opens the MBA and wants to PlayVideo.

2. The user chooses among the filessheis looking for. (include use case SearchMedia)

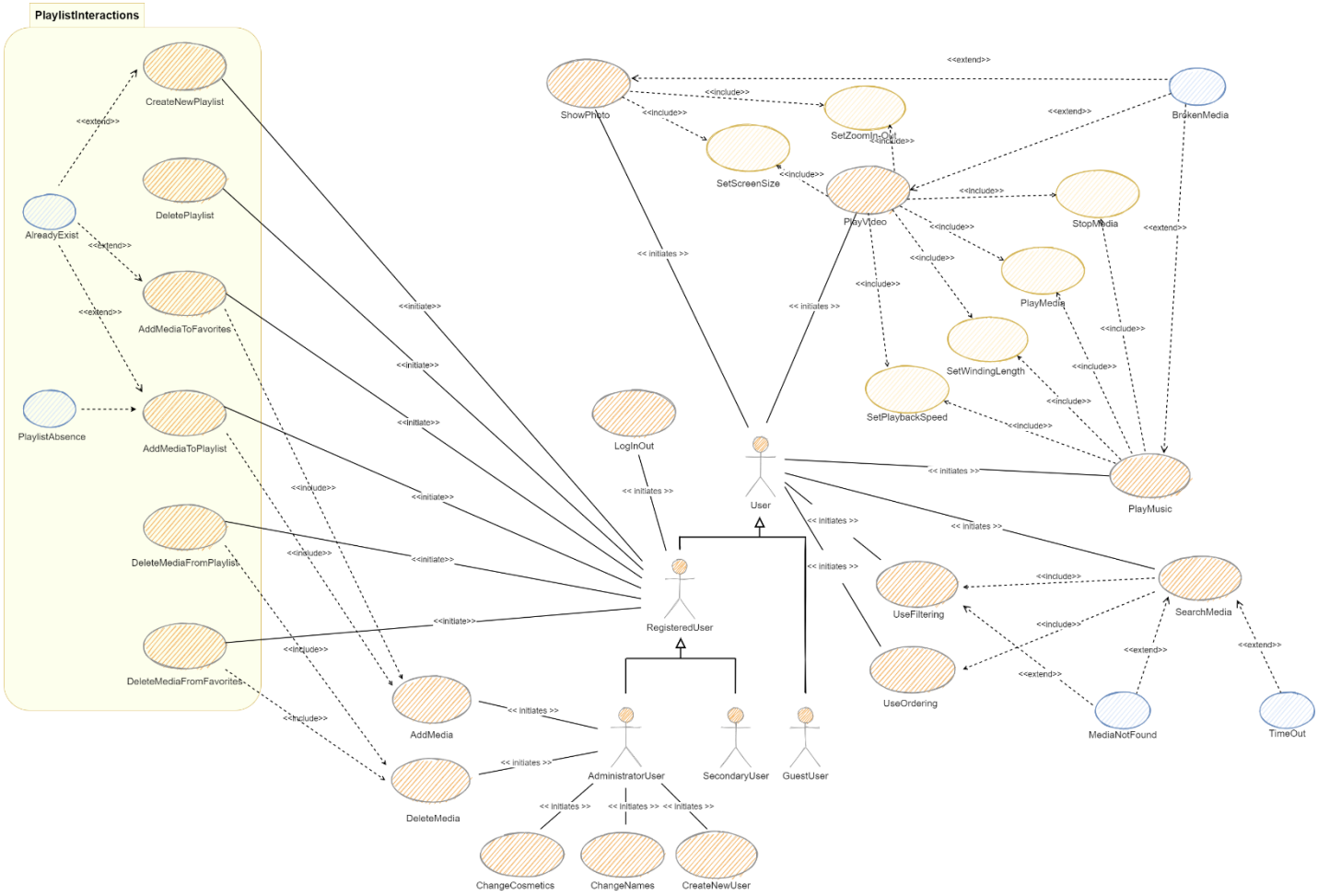
3. User performs StopMedia.

4. User SetWindingLength to 25 seconds. Therefore User, watches the videos with 25 seconds winding speed after from set it.

5. After the SetWindingLength; User performs PlayMedia.

3 -) “Main” Use – Case

❖ *Use – Case Diagram :*



3.4.3 Object Model

<Object model section documents in detail all the objects we identified, their attributes, and, operations. As each object is described with textual definitions, relationships among objects are illustrated with class diagrams.>

Step 5 activity

3.4.4 Dynamic Models

<Dynamic models section documents the behavior of the object model in terms of state machine diagrams and sequence diagrams. Although this information is redundant with the use case model, dynamic models enable us to represent more precisely complex behaviors, including use cases involving many actors.>

Step 5 activity

3.4.5 User Interface Mock-ups

<Mock-ups illustrating the user interface of the system and navigational paths representing the sequence of screens.>

Step 4 activity

4 Glossary

AdministratorUser	AdministratorUser is the most authorized person registered in the system in this application. There can be only one AdministratorUser in this application. Apart from the features that other users can do, AdministratorUser adds media to the application, deletes media from the application, sets the application's Cosmetics, changes the names of the media in the application and registers new users to the application.
SecondaryUser	SecondaryUser is a system registered user in this application. SecondaryUser performs all the functions that the registeredUser can perform.
RegisteredUser	RegisteredUser is a generalization of AdministratorUser and SecondaryUser. RegisteredUser represents the users registered with the application. Only a registered user can log in and out of the application. It can create a new playlist and delete a playlist. It can add or delete any media to favorites or its own playlist.
GuestUser	GuestUser is a user who can use the application with very limited features like only can opens and plays the media, without registering to the application.
User	User is a combination of AdministratorUser, SecondaryUser, and GuestUser. User represents all users in the application. User can play video and music, also show pictures. It can search, filter and sort through the media in the application.
PlayMusic	The User can start and pause the music. Besides, it can adjust the playback speed and winding length.
ShowPhoto	It shows the photos the user has selected in the application. The screen size of the selected photo can be adjusted according to user demand and the selected photo can be zoomed in and out.
PlayVideo	It shows the videos the user has selected in the application. The screen size of the selected video can be adjusted according to user demand and the selected video can be zoomed in and out. It can also start and pause the video. besides it can adjust the playing speed and winding length.

SearchMedia	It is used to quickly find any media in the application by the user. Filtering and sorting is done while searching for media.
UseFiltering	It filters the media in the application according to their types.
UseOrdering	Sorts the media in the application according to the desired condition such as the application upload date or alphabetical order.
ChangeNames	Changes the chosed media's existing name to desired name. Only AdminitrstorUsers can use it.
AddMedia	Adds the desired media to application. Only AdminitrstorUsers can use it.
DeleteMedia	Deletes the desired media from application. Only AdminitrstorUsers can use it.
ChangeCosmetics	Used to set cosmetic properties such as the app's theme, the background color of the playlists, the color and size of the posts.